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AMERICAN SCHOOL HEALTH ASSOCIATION

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Devoted to the interests and advancement of those engaged in school health activities and the service rendered by them

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SHOULD VITAMIN D BE GIVEN ONLY TO INFANTS?

VITAMIN D has been so successful in preventing rickets during infancy that there has been little emphasis on continuing its use after the second year.

But now a careful histologic study has been made which reveals a startlingly high incidence of rickets in children 2 to 14 years old. Follis, Jackson, Eliot, and Park* report that postmortem examination of 230 children of this age group showed the total prevalence of rickets to be 46.5%.

Rachitic changes were present as late as the fourteenth year, and the incidence was higher among children dying from acute disease than in those dying of chronic disease.

The authors conclude, "We doubt if slight degrees of rickets, such as we found in many of our children, interfere with health and development, but our studies as a whole afford reason to prolong administration of vitamin D to the age limit of our study, the fourteenth year, and especially indicate the necessity to suspect and to take the necessary measures to guard against rickets in sick children."

*R. H. Follis, D. Jackson, M. M. Eliot, and E. A. Park: Prevalence of rickets in children between two and fourteen years of age, Am. J. Dis. Child. 66:1-11, July 1943.

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THE JOURNAL OF SCHOOL HEALTH

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Vol. XVIII NOVEMBER, 1948 No. 9

THE HEART IN THE ATHLETE*

I. Comparison of Actual and Predicted Cardiac and Aortic Measurements—Analysis of Measurements of Cardiac and Supracardiac Shadows

JOSEPH B. WOLFFE, M.D., VICTOR A. DIGILIO, M.D., MAX SCHUMANN, M.D., A. D. DALE, M.D., A. W. DANISH, M.D., H. GOLDBERG, M.D.

Philadelphia, Pennsylvania

The effect of athletics on the heart has been a controversial question for some time. The literature is far from decisive.[1-10] Yet, it seems important to obtain an answer. The term "athlete's heart" is still in use at least in some quarters. Some mothers still hesitantly, if at all, give their consent to children desiring to enter competitive sports.

This question is not one which is going to find a simple solution. For example, observations over a limited number of years in a group participating in one sport will do very little toward the resolution of this problem. One method calculated to shed some light upon this subject concerns itself with the study of athletes of all ages and specialties. This method also takes into account the athlete of many years ago, in order that his findings may be compared to known statistical data obtained in non-athletic groups. In the latter instance, it must be admitted that the observations will have no determinative influence, but will merely suggest trends.

This method was put into operation by a committee composed of leaders in the field of physical education cooperating with a group of interested physicians. The physical educators arranged for the procurement of subjects. At this writing, 196 athletes have been processed, among them a number of champions.

---

*Study conducted at the Wolffe Clinic under the auspices of the Philadelphia Association for Health, Physical Education, and Recreation, and a group of cardiologists. *Study Committee*: Grover W. Mueller, chairman, Wilfred C. Collin, Wilbur C. DeTurk, Dr. Victor A. Digilio, Dr. Daniel J. Donnelly, Fred E. Foertsch, Martha A. Gable, Hans C. Gordon, William L. Hughes, William V. Krebs, Dorothy R. McQueen, Dr. Max Schumann, Dr. Joseph B. Wolffe. *Advisory Committee of Athletes*: Constance M. Applebee, Lt. Patty Berg, Barney E. Berlinger, Roberta R. Bonniwell, Dorothy Evans, Wallace F. Johnson, John B. Kelly, Thomas P. Loughran, Alice Marble, Daniel J. McNichol, Jack C. Medica, Agneta Powell, Emil Preiss, Charles H. Spalding, Jr., Ira F. Thomas, Anne Townsend, Louis A. Young.

Reprinted from Journal Lancet, June, 1948, p. 228.

This report deals with the results obtained in comparing actual and predicted cardiac and aortic measurements.

METHOD

196 athletes have been examined. 26 are females and 170 are males. The procedure of study includes the following: a detailed athletic and medical history, a complete physical examination, functional heart test (employing the Wolffe dynomometer[11]), vital capacity determination, six foot chest plate and electrocardiogram.

Transverse cardiac diameters, frontal heart areas, and aortic diameters were estimated from the six foot chest films. Aortic diameters are spoken of because this appears to be standard usage, but actually we are measuring supracardiac shadows. These calculations were compared to predicted measurements employing the nomogram method of Ungerleider and Gubner.[12]

Deviations of between plus 10 per cent and minus 10 per cent were considered within normal range of variation.

These subjects were classified according to the strenuousness of the sports in which they engaged, as follows.*

Class A includes the most strenuous activities; Class B somewhat less strenuous activities, and so on. Obviously, all kinds of combinations are possible, and a number of other factors must be considered in classifying the athletes.

Class A. Rowing, Water Polo, Wrestling, Boxing, Basketball.

Class B. Ice Hockey, Football, Soccer, Field Hockey (Girls), LaCrosse, Cross Country, Mile Run, Track (100-880 yard runs), Hurdles, Handball, Speed Skating.

Class C. Squash, Tennis, Swimming, Baseball, Gymnastics, Weight Lifting, Skiing, Field Events (Jumps only), Badminton.

Class D. Softball, Table Tennis, Fencing, Golf, Field Events (Weights only), Bowling, Volleyball.

These subjects were divided into the following groups:

Under 20 years of age—Group 1.
Between 20 and 39 years—Group 2.
Between 40 and 59 years—Group 3.
Between 60 and 79 years—Group 4.
Above 80 years—Group 5.

RESULTS

Group 1 (under 20 years of age). There were 41 cases in this group, all still participating in athletics. None revealed any history

*This classification was worked out by a committee of physical educators and athletes under the chairmanship of Mr. Grover W. Mueller.

suggestive of actual or potential heart disease or any evidence on physical or other examination of organic heart disease.

Only one of this group was placed in Class C category. His measurements were within normal range.

Forty were placed in Class A. Nine of these, or 21 per cent, showed more than plus 10 per cent deviation from the normal variation between actual and predicted *transverse diameters.* Twenty-four, or 58 per cent, exhibited more than plus 10 per cent deviation between the actual and predicted *heart frontal areas.* Twenty subjects, or about 50 per cent, revealed more than plus 10 per cent deviation between the actual and predicted *"aortic" diameters.* **(Fig. 1).**

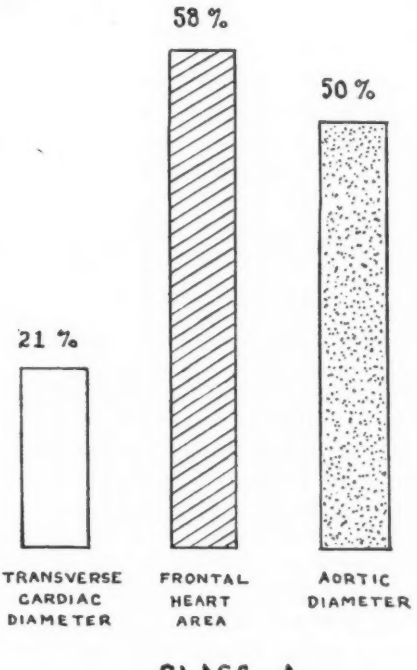

Fig. 1. Percentages deviating above the normal range—Group 1, Class A.

Group 2 (20 to 39 years of age). There were 53 subjects in this group. One was unclassified, reducing the number to 52. These were classified as follows: 36 subjects Class A, 14 Class B, and 2 Class C.

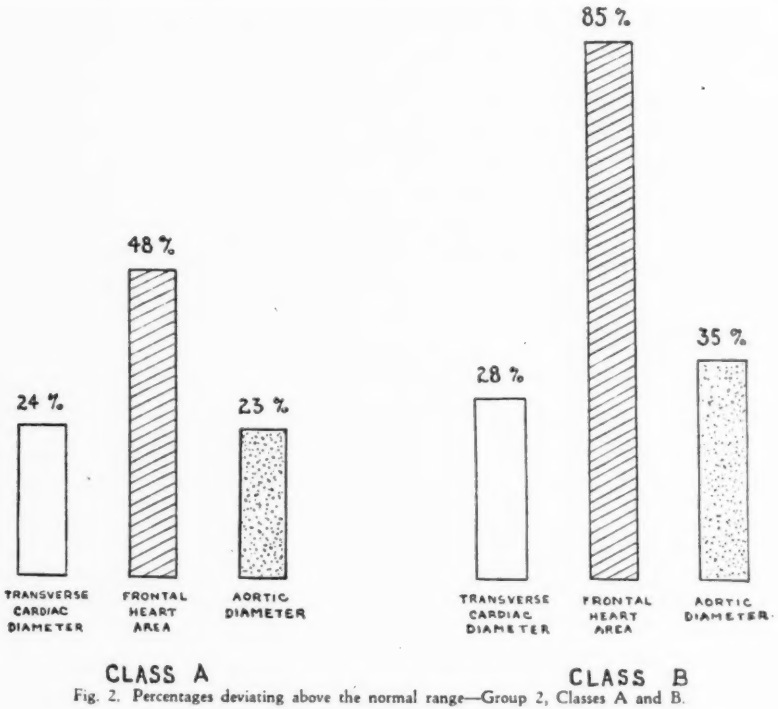

Fig. 2. Percentages deviating above the normal range—Group 2, Classes A and B.

Class A: Two cases were excluded from Class A because of hypertension; thus 34 subjects remain for analysis. The variations between actual and predicted transverse cardiac diameters range from minus 18 per cent to plus 20 per cent (22 from zero to plus 20 per cent, 8 showing more than plus 10 per cent, and 12 from minus 18 per cent to minus 3 per cent). Therefore, about 24 per cent exhibited transverse cardiac diameters greater than plus 10 per cent of the normal range.

The variations between actual and predicted frontal heart areas range between minus 19 per cent and plus 30 per cent (7 showed less than zero deviation, 27 varied from zero to plus 30 per cent, 14 of which exhibited more than plus 10 per cent deviation). Thus about 48 per cent demonstrate more than plus 10 per cent deviation.

The variations between actual and predicted aortic diameters range between minus 30 per cent and plus 19 per cent. Eight of these exhibit more than plus 10 per cent deviation—about 23 per cent. (Fig. 2.)

Class B: These subjects (14) show variations between actual and predicted transverse cardiac diameters from zero to plus 25 per cent. Four (about 28 per cent) reveal more than plus 10 per cent deviation.

The variations between actual and predicted frontal heart areas range from plus 1 per cent to plus 44 per cent. Twelve cases, or about 85 per cent, show more than plus 10 per cent deviation.

The variations between actual and predicted aortic diameters range from minus 9 per cent to plus 23 per cent. Five cases, or about 35 per cent, exhibit more than plus 10 per cent deviation. (Fig. 2.)

Class C: One of these two subjects had definite organic heart disease (aortic stenosis, probably of rheumatic origin). He presented the largest percentile deviation of frontal heart area (plus 60 per cent) noted in this entire study. The other subject (presumed normal) exhibits plus 16 per cent deviation in transverse cardiac diameter, plus 41 per cent deviation in frontal heart area, and plus 11 per cent deviation in aortic diameter.

Group 3 (40 to 59 years of age). 76 subjetcs exhibiting complete data comprise this group. 12 of these are excluded from consideration here because of evidence of hypertension and/or other potential or actual organic heart disease. This group is thus reduced to 64 subjects.

Class A: 42 subjects. The range of variation between actual and predicted heart diameters is from minus 15 per cent to plus 30 per cent. Fourteen cases, or 33 per cent, reveal a deviation of more than plus 10 per cent.

The variations between actual and predicted frontal heart areas range from minus 15 per cent to plus 41 per cent. Eighteen subjects, or 42 per cent, reveal more than plus 10 per cent deviation.

The variations between actual and predicted aortic diameters range from minus 14 per cent to plus 29 per cent. Eight cases, or 19 per cent, show more than plus 10 per cent deviation. (Fig. 3.)

Class B: 19 subjects. The variations between actual and predicted transverse cardiac diameters range from minus 9 per cent to plus 23 per cent. Ten cases, or 52 per cent, exhibit more than plus 10 per cent deviation.

The variations between actual and predicted frontal heart areas range from minus 2 per cent to plus 47 per cent. Fifteen cases, or 83 per cent, reveal more than plus 10 per cent deviation.

The variations between actual and predicted aortic diameters

range from minus 16 per cent to plus 19 per cent. Four cases, or 21 per cent, show more than plus 10 per cent deviation. (Fig. 3.)

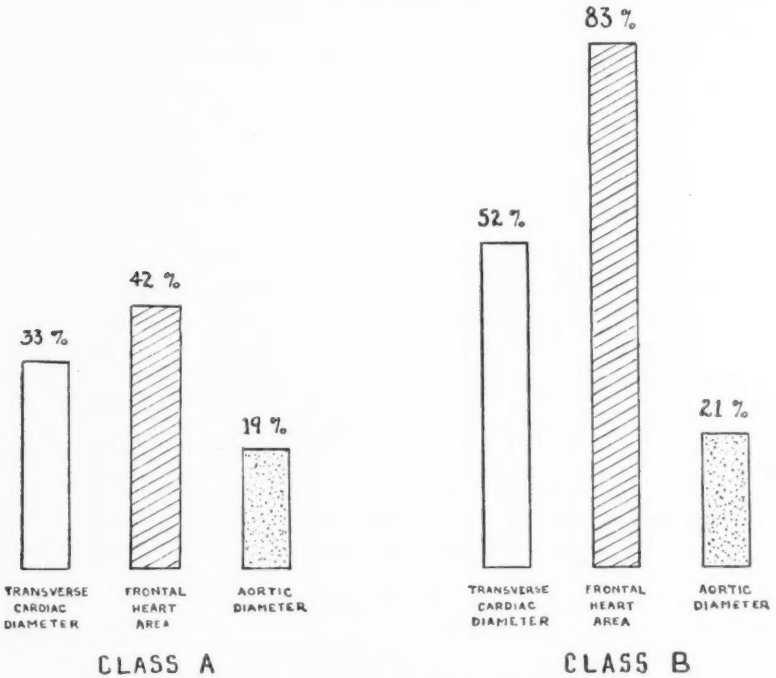

Fig. 3. Percentages deviating above the normal range—Group 3, Classes A and B.

Class C: 3 subjects. One case reveals plus 18 per cent deviation in transverse heart diameter. Two others exhibit findings within the range of normal.

All subjects show more than plus 10 per cent deviation in frontal heart areas. The highest is plus 40 per cent.

Two subjects reveal deviations in aortic diameters of more than plus 10 per cent.

Group 4 (60 to 79 years of age). There are 7 subjects in this group, 3 cases are in Class A and 4 are in Class B.

All 3 subjects in Class A exhibit cardiac and aortic measurements in excess of the normal range of variation. Two of these show evidence of organic heart disease.

One of the 4 subjects in Class B reveals abnorn. measurements. In the other 3 cases all measurements fall within normal

range except for a deviation of plus 41 per cent in aortic diameter in one subject.

Group 5 (96 years of age). This one subject reveals: plus 29 per cent deviation in transverse cardiac diameter, plus 44 per cent deviation in frontal heart area, and plus 21 per cent deviation in aortic diameter.

TABLE 1*

	T.C.D.	(P.E.)	F.H.A.	(P.E.)	A.D.	(P.E.)
Class A						
Group 1	21%	(2.2)	58%	(6.0)	50%	(5.4)
Group 2	24%	(2.7)	48%	(5.4)	23%	(2.7)
Group 3	33%	(3.4)	42%	(4.4)	19%	(2.0)
Class B						
Group 2	28%	(5.1)	85%	(15.5)	35%	(6.1)
Group 3	52%	(8.1)	83%	(12.8)	21%	(3.4)

*T.C.D. = Transverse cardiac diameter; F.H.A. = Frontal heart area; A.D. = Aortic diameter; P.E. = Probable error.

COMMENT

The subjects of Groups 4 and 5, because of their small number, do not permit any conclusions. The same may be said for the subjects in Class C in all groups. However, the numbers of cases in Groups 1 to 3 inclusive are sufficiently large.

The frontal heart areas reveal the highest percentage of deviations above the normal range. This is especially evident in the Class B athletes of Groups 2 and 3. The greatest percentage of deviations occurring in the latter groups is interesting because, for one thing, Class B sports are less strenuous than Class A sports. Moreover, both groups involve age ranges when the subjects tend to retire from strenuous sports. On the other hand, the subjects in Class A sports, although revealing high percentages of deviations in the frontal heart areas, exhibit palpably lower percentages of such deviations than shown by the subjects in Class B of Groups 2 and 3.

The percentages of deviation in the frontal heart areas in the Class A athletes appear interesting, especially when the results of each group are compared. The highest percentage appears in Group 1. Somewhat smaller percentages are noted in Groups 2 and 3. The results in the latter two groups are in fairly close agreement. It is interesting that the subjects in Group 1 present deviations in greater percentage than is the case among subjects in Group 2 or Group 3. The Group 1 subjects were still in active sports at the time of these examinations. On the other hand the subjects of Groups 2 and 3 have reached the age when retirement from active competition tends to occur. Deviations from the pre-

dicted transverse cardiac diameters seem to occur in rather high percentages. The latter appear to increase in the higher age groups. The percentage of these deviations is highest in the Class B subjects of Group 3 (the older age group, members of which have done less strenuous activity than those in Group 2).

Deviations from the predicted aortic diameters occur in unexpectedly high percentages in Group 1 and tend to diminish markedly in Group 2 and Group 3. It is probable that the aortic diameters are not what they appear to be in the subjects of Group 1. Two reasons seem to offer a likely explanation: (1) The aortic walls of the young are more dynamic than those of older people; and (2) the supracardiac shadows include the superior vena cava shadow, which may be a greater part of the supracardiac shadow than is true in older age groups.

It is interesting that the deviations in heart frontal areas and aortic diameters in the subjects of Group 1 (the youngest age group) are parallel. This will be discussed in subsequent publications.

SUMMARY

1. The frequency of deviations from the predicted transverse cardiac diameters tends to increase with age among the subjects of this study, and is highest in the higher age groups (40 to 59) of the Class B athletes.

2. The frequency of deviations from the predicted frontal heart areas seems to be greatest in Class B athletes between 20 and 59 years of age. Although the frequency is less than in Class A athletes of all age groups, it is rather high.

3. The frequency of deviations from the predicted aortic diameters tends to be lower with increasing age among the subjects between 20 and 59 years of age included in this study.

IMPLICATIONS

1. The size of the athlete's heart may differ normally from so-called accepted standards.

2. The significance of cardiac enlargement should only be interpreted after a prolonged nation-wide investigation of athletes, including longevity and mortality.

3. This study may be considered only as a survey of a very important problem.

4. A nation-wide study is urgent because we are now encouraging vigorous physical activity in all schools and colleges, as a result of the war and of the physical fitness program. This could

best be accomplished, perhaps, by a project which could be started in these United States patterned after The Research Board for the Correlation of Medical Science and Physical Education of the British Isles. Perhaps no more lofty goal could be hoped for than the aims* outlined by this board at its first meeting.

1. To ensure more general recognition of the need for health and physical education in the widest sense.
2. To achieve more general co-ordination between authoritative groups dealing with various aspects of the subject.
3. To pool the experience of national groups so that it may be of use to all.

*Report by The Research Board for the Correlation of Medical Science and Physical Education. Published by the Research Board for the Correlation of Medical Sciences and Physical Education and the Ling Physical Education Association, Hamilton House, Bidborough Street, London, W. C. 1. First meeting.

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—Journal Lancet, June, 1948, p. 228.

* * * * *

"Motivation in Health Education",—The 1947 Health Education Conference of the New York Academy of Medicine. Columbia University Press, New York, 1948, pp. 53.

The problem in "How can the educator make his instruction effective in the behavior of those whom he teaches." This question the text tries to answer in four short units on motivation devoted to The Problem; The Changing Patterns; Myths and Resistances; Positive Motivations: written by Ingo Galdston, M.D., W. W. Bauer, M.D., Lawrence S. Kubie, M.D. and Margaret Mead, Ph.D., each expert in the field they present.—*Chas H. Keene.*

INSPECTION FOR SAFETY

By VAUGHN HALL
Director of Health Physical Education and Recreation, Utah Department Public Instruction

Crowded! Antiquated! Inadequate! Unsafe! These are a few of the common terms currently being used to describe many of our present day school buildings. The status of these buildings is for the greater part the result of a building holiday brought on by the building restrictions of the war. But many of the conditions are remedial without great cost.

Perhaps one of the most important effects of this retarded school building and renovation program is the increase in school fire hazards. Increase in school population has necessitated the crowding of classrooms. Attics and hallways in many schools have been converted into classroom space, with the smallest youngster, in some cases, being tucked away in the farthest corner.

In one small school which was inspected, it was found that the partition between the boiler room and the rest of the building was of cardboard.

Storage space is at a premium in many buildings, consequently the custodians are finding it increasingly difficult to maintain good housekeeping procedures. Common repair material for the electric system, heating system, and general maintenance has been difficult to acquire. Some of us are now so accustomed to observing our buildings in a state of disrepair that we have not yet stopped to take stock of our situation. Since the passing of the war-time scare of bombing, there seem to be, in many schools, an attitude of complacency and a departure from the practice of fire drills.

These and several other factors, suggest that many of our school buildings, facilities and procedures can be improved for fire safety. Children compelled by law to attend school are rightfully entitled to a safe place in which to live and learn.

The occurrence of four major school fires* in this state within a two-year period has prompted a state-wide investigation into the causes of school fires.

Although our schools were generally thought to be in fair condition, it was felt that overcrowded conditions, because of influx of workers in war industry areas of the state, may have caused an increase in fire hazards. School and safety officials

*Fortunately, in each case, the fire occurred outside of school hours. Consequently, there was no loss of life.

Reprinted from Safety Education, October, 1948, p. 6.

decided that a careful checkup should be made. Nineteen spot check investigations were made of school buildings, selected at random over the entire state, for the purpose of determining the type and extent of fire hazards which existed. An additional purpose was to promote an attitude of fire consciousness among school people and to work for the elimination of the hazard as quickly as possible.

At intervals during the school year representatives visit school districts and make investigations of fire hazards. On arrival at a particular school, the first procedure is always to go directly to the office of the principal and ask for a fire drill. The responses to this vary and range from the "well done" to the comical.

In one rural community without fire-fighting equipment of any kind, a teacher exclaimed, "We haven't had a fire drill in the nine years I've been here." The committee then invited the principal and custodian to accompany them on the inspection of the building.

The type of fire hazards and number of times encountered in the 19 spot checks are recorded below. A school was listed when found deficient on any item. For example, if a panic bolt on one door was absent, the school was listed for absence of panic bolts on doors.

Hazard	*Incidents (No. of school)*
1. Buiding (general)	
a. Blocked exits, etc.	9
b. Inadequate exits, etc.	7
c. Doors do not open outward	3
d. Windows barred or screened	3
e. Absence of panic bolts on doors	15
f. Inadequate exits from assembly hall	3
g. Improper storage	16
h. Flammable liquid improperly stored	14
i. Burning rubbish improperly	5
j. Storage under stairs	10
2. Electric system hazards	
a. Overloaded wiring	5
b. Improper fuses	19
c. Faulty switches	10
d. Bare wires	7
3. Heating system	
a. Faulty flues, pipes, lines	4
b. Improperly insulated or set off from other parts of building	6

c. Improperly contained flammable liquids in furnace room	6
4. Fire-fighting Equipment—Fire Extinguisher	
a. Improperly placed	10
b. Not in working order	11
c Inadequate type or number	15
5. Fire Drills	
a. Not practiced	1
b. Practiced, but inadequate	12

This project was a natural for publicity. State newspapers were more than eager to print the results of these inspections. This has been particularly beneficial in helping to produce a favorable attitude toward school fire safety. The committee has been deluged with requests from parents everywhere in the state to visit and inspect their school. This is an encouraging sign. It is evident that many of our people are becoming convinced that "it could happen to us."

This year special emphasis will be given to the elimination of all possible fire hazards in schools. A committee under the direction of the state superintendent of public instruction has prepared a statement of standards and procedures for school fire safety* These are to be distributed to each school district in the state with the recommendation that they be put into effect during the coming school year.

* * * * *

Fuel Savings in New York City Schools,—Fuel bills of the New York City schools were reduced by more than $2,600,000 in six years, according to a recent report issued by Harold D. Hynds, superintendent in charge of the Bureau of Plant Operation and Maintenance.

Among the measures used in fuel savings are inservice training courses for school custodians, regular checking of temperature control systems, continuous inspection of heating surfaces, and frequent efficiency tests on boilers.

New York City schools maintain a temperature of 68 to 70 degrees in classrooms, offices, and auditoriums. In the gymnasiums, shops, and corridors, temperature is kept at 65 degrees. School Management, August, 1948, p. 17.

*The American Standards Association has published a building exit code prepared by the National Fire Protection Association. The section on schools is a recommended standard guide.

SOME CHANGING CONCEPTS IN THE EDUCATION OF PHYSICALLY HANDICAPPED CHILDREN

VIVIAN ELLIS, ED. D.*

Associate Supervisor, Education of the Physically Handicapped
New York State Education Department

Educational practices, unlike feminine fashions, are not subject to sudden and radical changes. Revisions in a basic philosophy are of gradual development and often it is only by taking a long look backward that we realize that there have been changes. There is strictly speaking no "new look" in the special education of the physically handicapped. This discussion will not cover all of the areas in this important field of education. To some of you many of the points to be considered may seem obvious and of minor importance but they will be problems which have been presented in the schools of New York State during the past school year.

A considerable number of children have disabilities and limitations so severe that it is impossible for them to make normal progress in school without special services, instructional techniques, equipment or a combination of these adjustments. Justification for special educational programs for the physically handicapped lies in the fact that these children have special *needs* and the schools can provide special *services* to meet these needs.

For the provision of certain types of services and at the same time to keep costs within reasonable bounds, the establishment of special classes is advisable. The value of the services will be greater than the disadvantages of segregation. When there ceases to be a need, the child should be returned as quickly as possible to the regular class. The point should also be brought out that segregation without the provision of special services cannot be considered as a justifiable part of an educational program.

We, as educators, are dependent upon you physicians for we realize the necessity of having proper medical diagnosis. For many of these children, it will mean that medical specialists should be consulted and should assist in planning an educational program which will meet the needs of the child. We are also aware of the necessity of maintaining close medical supervision of the children in these classes throughout the school year. If a child is seriously enough handicapped to warrant placement in a special class, he

*Paper presented at the Annual Meetings of the New York State Association of School Physicians and the New York State School Nurse Teachers' Association, Saratoga Springs, New York, July 20, 1948.

will be in need of more medical attention than is given to normal children.

Following the discovery of children with serious physical defects, careful planning is necessary so that proper adjustments and services can be provided for each child. It sometimes happens that not enough individual study is made of these children and, even though they are placed in a special class, their needs are not being met and I regret to say that sometimes children have been placed in these classes through expediency rather than necessity.

One of the problems that needs to be faced and met is that of providing adequate parent education. So often it is found that a child who, for instance, has a serious visual defect is denied the benefits of placement in a sight conservation class because the parents do not fully recognize the opportunities being offered and consider that this is a stigma rather than a privilege. Closely related to this is the need for the school physician to give guidance to school administrators and to teachers as to the physical condition of the child and the needs and the services which will be necessary to help him make an adequate adjustment in school. For instance, principals and teachers sometime object to the children in special classes going into regular classes for part of their work. They often have the feeling that the teacher of the special class is trying to evade responsibilities. They need to be helped in understanding the value to a physically handicapped child of participating in activities with normal children. To correct a physical defect at the expense of creating a personality problem or maladjustment is doing an injustice to the child.

Another point that should be made in regard to the cooperation of the school physician and the school administrator is that, on the other hand, it must be realized that the school administrator is responsible for the carrying out the program. A physician should guide and make recommendations, but the actual educational planning and supervision must be left to the administrator.

What has been said has been general and could apply to any type of physically handicapped child in any situation. In New York State there are special classes for partially sighted children, for those who are deaf and severely hard of hearing, for those who are physically below par and for the cardiac, orthopedic and cerebral palsy children. Time does not permit a detailed discussion of these various types of classes. There are, however, a few problems which should be brought to your attention.

First, there is a need for the re-evaluation of the educational

provisions being made for physically below par children. In the early development of these special classes, emphasis was placed on the care of "pre-tubercular" children. Conditions such as anemia and malnutrition were thought to be predisposing factors leading to tuberculosis and, in these early classes, a great deal of emphasis was placed on the importance of fresh air, food and rest. According to our modern medical findings, medical authorities now question this concept of a "pre-tubercular" condition. Yet in the 297 health improvement classes in New York State we still find that a majority of children are placed there because they are underweight, nervous, fatigued or under-nourished. I understand that to diagnose malnutrition accurately requires clinical procedures and careful study. At any rate, the fact that many of these children were placed in these classes for a period of several years shows that the type of service provided is not meeting their need.

In the early 1900's when many of these classes were established, school conditions were quite different. The change in modern educational practices makes us wonder if some of these classes are now wholly justified. For instance, in the modern school, we find a less formal, more flexible program. We also find that there is more emphasis on health service and health education for all children. Within recent years, school lunch programs have been established and are now serving over 50 per cent of the children in New York State. (In other words, it is not necessary to segregate a child in a special class in order to give him a glass of milk or a cup of soup). Facilities should be available in every school for rest for any child who needs it.

We find, too, a more adequate provision of personnel such as the school physician, the school nurse teacher and the dental hygiene teacher as well as the visiting teacher, health teacher, and guidance directors. Another important change in the modern school is the improved condition of school buildings in regard to sanitation, ventilation, heating, lighting, etc.

A convalescent type class may be advisable for certain types of children. These classes should have flexible admission and dismissal policies. A child may need the service for only a short time following an illness. As I have mentioned before, adequate medical supervision should be given to these classes including careful study before admission or dismissal and frequent check-ups while the child is in attendance.

There are many services which can be provided without having the child placed in a special class. They would include trans-

portation, rest periods, lunch and supplementary feeding as well as parent education. I think you would be interested in knowing that in one community in this state where four health improvement classes have been maintained, consideration is being given to an experimental program in which some of these classes will be disbanded and a more comprehensive type service provided instead. In addition to the usual health services, this community plans to establish a nutrition clinic where laboratory tests and other diagnostic procedures will be used more accurately to determine the needs of the child. It is also planned to employ home counsellors who will go into the home and work with the family, giving guidance on nutritional problems, sanitary conditions, health habits, mental hygiene, etc. I think this is a plan that merits consideration by school authorities in other communities.

Another specific problem concerning physically handicapped children is that of making adequate provision for cardiac children in our schools.

The educational provisions for a cardiac child should depend upon the cardiac classification which, in turn, will be determined by the presence or absence of rheumatic activity and the amount of residual cardiac damage. The cardiac classification and, thus, the educational needs are likely to vary considerably during a year's time. This makes evident the desirability of providing a flexible program and also emphasizes the need for continuous medical supervision of these children.

Standard classifications such as those established by the New York Heart Association should be used if possible. While physicians understand that the term "cardiac" may cover a wide range of disability, the average teacher and school administrator does not have this same understanding and, therefore, does not realize the need for various types of programs. If in designating a child as cardiac you could classify him as I, II, III or IV, the schood personnel would be able to understand this better.

In the active or acute stage, a child should be hospitalized, placed in a sanatorium or receive proper care at home. He would be classified as IV and no education should be provided.

In the sub-acute or convalescent stage, the child should be in a sanatorium, convalescent home or quiet in his own home. He would probably be considered as class III, hospital and home teaching should be provided.

In the recovered or quiescent stage, children should attend school. For those in class II, the activities must be slightly limited.

They should either be placed in a special class, or special services and modifications of the regular program will be necessary. A child may be able to return to school at an earlier date if he is placed in a cardiac or health improvement class. Such a placement may help in the hardening up process and would be a transition between home or sanitarium care and the return to a regular class.

Those in class I are also in the recovered or quiescent stage, but will be able to carry on all ordinary activities, if properly supervised. Competitive athletics, however, or games which demand sudden physical or emotional strain should not be permitted. These children should be placed in a regular class

Another phase of special education that should be considered is the care of orthopedic children. Many communities in New York State have classes for orthopedically handicapped pupils in their schools. Children are placed in these classes primarily because they need physiotherapy or because they are non-ambulatory and need assistance in getting around. They may also be placed in this class if special teaching technics are needed such as would be the case with cerebral palsy children.

I would like to tell you a little of the present philosophy in regard to physiotherapy. Within the last few years, the "Daily Demands" program has been developed by some of our leading orthopedists and this program is being introduced into the schools. It is an extension of the former physiotherapy program and trains the pupil in physical skills that are needed in daily living, such as going up and down stairs, getting on and off a bus, crossing the street in the time of a traffic signal, eating, dressing and undressing themselves and the manipulation of household fixtures such as faucets, doorknobs, dial telephones, etc. The training of muscles, as desirable as that may be, is not an end in itsef—it is the application in terms of self-care and daily living that is the ultimate goal for which we are working.

Another recent development in the field of orthopedics is the increased interest among lay people in the field of cerebral palsy. For a number of years, about one-third of the chidren in the orthopedic classes of New York State have been children who are handicapped by cerebral palsy, but recently, 8 centers or classes have been established specifically to care for these children and several more will probably be opened within the near future. These programs are more expensive than other types of educational programs because of the fact that these children need so many types of services, such as physio-therapy, occupational therapy, speech

development and matron service in addition to the services of a teacher who is specifically trained in this field.

In these centers for cerebral palsy, children are being admitted at nursery or kindergarten age, usually the lower limit is four years. It is realized that with this particular type of disability treatment should be begun at as early an age as possible.

There is one problem that is constantly arising in these centers for cerebral palsy, and that is in regard to the mental ability of these children. In many places, the parents of feeble minded children have "jumped on the cerebral palsy bandwagon" so to speak, and are putting a great deal of pressure on the schools to have their children admitted to these classes. Of course, one must bear in mind the fact that estimating the mental ability of cerebral palsy children is exceedingly difficult. However, we must, on the other hand, use considerable caution so that these classes will not become filled with uneducable and untrainable children. After having been tested by the school psychologist or the mental hygiene clinic, if there is any doubt it may be well to admit these children for a short period on trial, but this trial period need not cover a full school year.

In the Schulman report of the Commission for the Study of Cerebral Palsy which has recently been published, the statement is made that the number of known cases in New York State is 6,000, and the minimum estimate of the number probably requiring attention is 10,000. Of this number, 1,000 are being cared for by the Department of Mental Hygiene in the various state schools. 625 are attending special classes in the public schools; 71 are being provided with home teaching, transportation or speech correction through the children's court; 51 are reported as exempt from school and of these, 18 are reported as being feeble minded.

According to standard estimates, we would expect that one-third of the cerebral palsy children would be very low intelligence, one-third would be mild cases who could adjust themselves in the regular class, and one-third would be mentally normal but severely handicapped physically. If we take the figure of 6,000 known cases and apply this formula, we find that there would be 2,000 children who should be receiving special education and, as has just been stated, there are at present only 745 receiving this service. One reason for this discrepancy is that very often these children are not reported to the State Education Department.

In addition to special classes, educational provisions such as home teaching, transportation to a regular or special class, and

tuition may be provided by the local boards of education or through the children's court. If a child is mentally capable of learning but is confined to his home because of a physical disability, school authorities have a definite and moral responsibility for providing suitable education unless the condition is temporary or in the acute state, and the child is too ill to receive instruction. There are certain types of classes for whom court orders for home teaching cannot be approved. Children with visual handicaps and those with hearing handicaps are not eligible except for a few very unusual cases. Mentally deficient children with I.Q.'s under 50 are also ineligible. Home teaching should always be considered as a last resort and should be provided only when it is impossible for the child to attend school.

In closing, let me express the appreciation of the Bureau for Handicapped Children for the cooperation which has been given by school administrators, the physicians and the school nurse teachers. The concern of everyone is to discover the children who need help and to provide them with the proper type of educational, medical and therapeutic service. This means that there must be a coordinated program as we are working with children whose needs are often numerous and complex.

* * * * *

Dental Health,—At least 95 per cent of the American people suffer from some form of oral infection. Studies indicate that American children between six and 18 years of age require about 244 million fillings to place their mouths in a healthy condition and that once this backlog of accumulated need is met dentists would have to insert an additional 33 million fillings per year to fill the annual increment of cavities in that age group.

Cavities develop in children's teeth at a constant rate, one carious tooth every 16 months, or three-fourths of a tooth per year. Among adults there is an average need for 4.5 fillings and more than two extractions. About one out of every four adults needs one or more bridges, while one out of every six requires full dentures. Dr. Lon W. Morrey, Editor, Journal of the American Dental Association.

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EDITORIAL

Several times during the last few months* there have been articles in the Journal concerning fire and other hazards in our schools.

In Colliers for October 2 and October 9, 1948 appear articles entitled "Death in the Class Room." This is a presentation of conditions in the public schools showing fire hazards that are in direct violation of the laws of the areas in which they occur and are so bad that one questions the information and intelligence of the Boards of Education responsible for these menaces to the health and lives of our children.

Carelessness and meanness have permitted school buildings to fall into disrepair, and have led Boards of Education to continue conditions that are a deadly menace. The members of these Boards, through ignorance or worse, not only are permitting firetraps to remain in old buildings, but are putting such traps into newer construction. Some of these are described in the articles mentioned. Many school buildings are still in use that should have been closed generations ago. They are inadequate educationally, unsafe physically, and a shame to the communities they infest.

There are a number of such antiques in New York City, and at least one in the city of Buffalo, that were constructed in the

*Vol. XVIII No. 2, p. 48; Vol. XVIII No. 4, p. 95).

1860's and have been in use ever since. As antiques they are hideous and as parts of an educational plant they have long since passed their period of usefulness.

Why is not something done about these disgraces? We hesitate to say. Our opinion would be considered most impolite by those responsible. There is plenty of law to remedy, or to compel authorities to remedy these dangers. An honest and resolute Fire Department chief can compel correction or the closing of the school. Boards of Health should close some of them as health menaces. A Board of Education should hang its head in shame if it permits such schools to be operated. Parents should visit their schools throughout and intimately. A trip to the principal's office or to the auditorium is not visiting the school. Prowl about. Be nosey. Parent-Teacher Associations should make it their business to know their school buildings and force safety improvements or force the closing of the school. (This fire hazard control is much more their business than is the voting of resolutions condemning Universal Military Training.)

That, and in many cases, that alone, will bring the publicity and public clamor that will force remedial action.

In most cases, it will take more than talk. Often those responsible for our government operate on the basis that the public soon forgets. Do not let them forget. Keep at it. A thumb hammered long enough and vigorously enough will compel action. Everyone along the line—teacher, principal, superintendent, Board of Education, Board of Health, Fire Department, and the daily press—has responsibility for the safety of the schools and the chidren in them. Some day some one or group will sue a school district following a school fire in which children are injured. This will hit the pocketbook nerve hard enough to jar loose some of the barnacles controlling our schools.

Many schools will be forced to close and they should be closed. Parents cannot be forced to trust their children to a building demonstrably unsafe. And education (schooling was the good old word) is not of much use to the child who has been burned to death.—*C.H.K.*

* * * * *

Diphtheria,—The recent report from the American Medical Association on diphtheria shows that for the 88 cities of 100,000 or more population, for which the report is complete, the diphtheria death rate for these cities has been pushed down from 13.13 per 100,000 in 1923 to 0.53 per 100,000 in 1947. **Journ. A.M.A., August 21, 1948, p. 1525.**

ABSTRACTS

There Are No Mad Dogs in England,—During the five-year period between 1940 and 1945, 45,235 cases of rabies were reported in the United States, 90 per cent affecting dogs. Contamination by rabid animals jeopardized 150,000 human lives. The infected men, women and children were saved from developing hydrophobia by special medical treatment, an expensive and time consuming business often fraught with dangerous complications. We have permitted a threatening situation to get out of hand, a bitter truth in view of the fact that it would be in our power completely to wipe out rabies from the United States.

In stark contrast, not a single case of rabies has been reported in Great Britain for twenty-five years. The frightening spectacle of a mad dog running amuck is totally unknown in the British Isles. So is the patient stricken by rabies who must die the most shocking and painful form of death. Many years ago the British devised a method to eliminate rabies and have carried it out with admirable determination and success.

Rabies, in fact, is incurable. Once its symptoms have developed, no power can heal it. Fortunately, the bite of a rabid dog doesn't always cause rabies, it only introduces the virus of the disease into the body. Rabies develops if the virus is permitted to advance to the brain and the spinal cord, the targets of its attack.

The greatest flaw of the Pasteur treatment is that it isn't reliable in all cases. About one out of 500 patients fail to respond, and develops rabies in the face of the most competent medical care. The spectacular British success in suppressing rabies shows up the virulence of rabies in our country as the result of a shocking national negligence. Instead of reducing the disease to zero or to a successively lower rate, we have permitted it to spread with increasing vigor. While in 1940, 7,238 cases were announced, in 1944 the figure jumped to well over 10,000.

The danger of rabies is heightened by the circumstance that, contrary to popular belief, it is not only spread by bites. The saliva of an infected animal contains a large dose of the virus, and if it comes in contact with open wounds it infects. Last June a young school teacher in northwestern Ohio was exposed to the saiva of a dog. Not having been bitten, she took no precautions. Suddenly in late August, she developed rabies and within three days died, after horrible suffering.

In her case a little over two months elapsed between the infection and the outbreak of the disease. The so-called incubation period is completely unpredictable. A person may be bitten by a

mad dog and develop symptoms in fourteen days. Or again he may remain hale and hearty for a year or longer, when suddenly the dreaded symptoms appear in full vigor.

If this ghastly disease has completely disappeared from England, the credit is due to the courage and determination of one man: Walter Long, later Viscount Long of Wraxall. His example may well inspire America in wiping out a particularly obnoxious enemy of public health.

As President of the Board of Agriculture in Lord Salisbury's cabinet before the turn of the century, Long ridded his country of rabies against the fanatic opposition of its misguided dog lovers.

In his memoirs, Lord Wraxall describes how two "fortunate" cases helped him to carry on his work at the time of the greatest public outcry against his policy.

The owners of small lap dogs almost toothless with age protested with particular frenzy against their pets being subjected to detention and muzzling. Then at the exact psychologic moment a case occurred in a London hospital which suddenly changed the situation. A nurse of great experience and knowledge had an old and toothless small dog of which she was very fond. It betrayed symptoms of illness and she proceeded to tend and nurse it herself. In doing so, she came in contact with its mouth, received a scratch on her lip, and in a very short time, died of rabies.

The second case was even more distressing. In a large town of southern England a mad dog ran amuck and went through a group of small children coming out of school. He bit several of them and they had to be rushed to Paris accompanied by their panicked parents. Millions watched the outcome of the desperate journey with anguish and horror.

There is no reason why we should wait for the occurrence of similar tragedies before we make up our minds. By taking advantage of the successful British experiment and of the experience of our more advanced states, the continent of North America can be rid of rabies within a few years. By Tibor Koeves. Abstracted from Hygeia, July, 1948, p. 498.

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Smallpox Almost Eradicated,—Smallpox is rapidly approaching extinction in the United States. In 1947, there were only 173 cases of the disease reported in the entire country, as compared with 356 cases the year before and with 11,673 in 1937. This is a reduction of more than 50 per cent in a single year and of more than 98 per cent in a decade. Furthermore, progress in the eradication of smallpox is continuing; in the first 20 weeks of 1948 there were only 45 cases, about one-third the corresponding figure of a year ago.

Seventeen States and the District of Columbia were entirely free from the disease in 1947, while six other States reported only one case each. The perfect record for the State of Washington last year contrasts sharply with the experience in 1946 when 88 cases resulted from infection brought in from the Far East. Deserving of special mention are the six New England States, as well as Pennsylvania, Delaware, Maryland, Virginia, and the District of Columbia, which have not had a single case of smallpox in at least three years. Rhode Island can boast an unblemished record for two decades.

While 1947 was a banner year, it had the potentialities of being a disastrous one. Early in the year, virulent smallpox was introduced into New York City by a merchant returning from Mexico City. As soon as the local health authorities became aware of the fact, they immediately drafted plans to vaccinate as many people in New York City as possible. Through a heroic effort and the cooperation of private physicians, pharmacists, the press, the radio, and many organizations, more than 6,000,000 people in the city were vaccinated in less than a month—more than 5,000,000 of them within two weeks.* This mass vaccination program succeeded in preventing the spread of the disease beyond the 12 cases contracted before the campaign was started. The reaction of those vaccinated indicated that the number of susceptibles in the population was sufficient to have made a major epidemic possible.

The smallpox problem is now largely concentrated in some of the midwestern and southwestern States. Indiana last year again had the dubious distinction of leading in the number of cases reported, namely 29. Texas ranked second with 15, Ohio and Kansas each registered 13 cases, and New Mexico and Missouri each had 11. These six States were responsible for more than one half of all the cases reported in the country. There is no reason why the disease should persist in those areas, inasmuch as it can so easily be prevented.

It is noteworthy that in all of Canada last year there was not a single case of smallpox; only seven cases have been reported in the past three years, all of them occurring in the Province of Saskatchewan.

The complete eradication of smallpox in the United States is clearly in sight. This goal can be reached—and kept—through vaccination and periodic revaccination. Our country has become the crossroads of the world, and unless our people are immunized

*Weinstein, Israel. An outbreak of smallpox in New York City. American Journal of Public Health, November, 1947, page 1376.

other countries and cause a serious epidemic here. Recent events have proved that this danger is more than an academic speculation. there is always the danger that the disease may be brought in from Statistical Bulletin, Metropolitan Life Insurance Co., June 1948, p. 6.

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BCG Vaccination,—It is clear from various reports and discussions that BCG vaccination is a safe procedure if used under proper supervision and in the proper circumstances. It has definite usefulness in many situations in which susceptible persons are exposed to infection, but its exact field of usefulness and limitation has not been fully defined. It is believed that to date there has been no reliable study of sufficient duration to permit a precise evaluation of the effectiveness of vaccination over long periods. For that reason it was deemed unwise at present to make the BCG available for general distribution in this country.

Until the optimum methods of using this vaccine are defined and the exact field of usefulness and limitations have been established, it seems best to limit its use and distribution to the controlled studies in which careful observations and prolonged follow-up examination by experts are possible. In this manner the best available information concerning the uses and limitations of BCG vaccination can be obtained and its field of usefulness can best be delineated.

In accordance with this policy, plans for a BCG vaccination program in the city of Boston are under preparation by the Division of Tuberculosis of the Boston Health Department. Vaccine, according to recent advice from the Department, is to be furnished by the Tice Laboratory of Chicago, and the technical application of the program will be initiated by an associate of that laboratory and will be conducted as recommended in the report of the Chemotherapy Committee of the American Trudeau Society. New England Journal of Medicine, June 24, 1948, p. 920, abstracted from editorial.

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REVIEW

Health in Your Daily Living. *Josephine L. Rathbone, Francis L. Bacon, and Charles H. Keene.* Houghton Mifflin Company, Boston, 1948, 442 p.

This is an excellent text for use in the senior high school. It should serve as a basis for the concentrated health course just as many health-text series have been of use in the less desirable plan of one-hour-a-week instruction spread over several years.

The book is well written and is full of clearly presented facts. It is extensively illustrated with interesting and informative pictures and charts. The text should appeal to the high school student.

The activities and learning and teaching aids at the end of each chapter are listed under: Putting Theory Into Practice; Seeing for Yourself; Getting the Help of Specialists; Using Professional Terms; and Reading for Wider Knowledge. The Appendix contains food tables and a glossary.

The thirty sections are grouped under the following ten major headings: In Search of Health; Looks That Show Health; Eyes, Ears, Nose and Throat; Eating for Good Health; Your Food-Using Machinery; Nerves and Emotions; Exercise and Relaxation; The Menace of the Microbe; Safety and First Aid; and Health Through United Effort.

The health teacher will need to supplement the chapters in two rather important areas, namely, education for family living and occupational health, if the course is to be well-rounded. Otherwise, it is a text which should meet the needs of teachers who wish to offer a good, satisfactory course in health instruction. H. F. Kilander, Ph.D.

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